Quick Operating Guide

PM2535

SYSTEM MULTIMETER

4822 872 30386 880301

1. INTRODUCTION

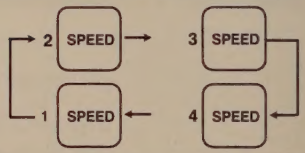
The aim of this guide is to help the user of the PM2535 to find quickly the correct operating commands, without using the Operation Manual.
This guide shows the manual commands versus the IEEE-488/IEC-625 commands. The commands are described in the same order as mentioned in the Operating Manual viz. Standard Multimeter functions, Helpfunctions, Interface Programming Controller dependent Commands, Interface Programming Device dependent Commands, Device status byte, Output data.
System 21 commands can be found in the SYSTEM 21 Quick Operating Guide.

PHILIPS

2. STANDARD MULTIMETER FUNCTIONS

Function	Variables	Manual operation (keys)
V⎓, V∼, Ω2W Ω 4W, A⎓, A∼ °C	X	V⎓ V∼ Ω2W Ω4W A⎓ A∼ °C
RANGING		
Automatic	A	AUT/ .....
Manual	Y	UP DOWN
TRIGGER		
Single		SINGLE
Intern	I	INT

Remote operation (commands)	Description
FNC_X	xxx can be one of the following functions: V D C = Direct voltage V A C = Alternating voltage R T W = Ohm 2-wire R F W = Ohm 4-wire I D C = Direct current I A C = Alternating current T D C = Temperature °C
FNC_? → FNC_X	Ask function.
RNG_A[UTO]	Autoranging
RNG_Y	Manual ranging Y = The expected measuring value or the end-of-range, can be programmed in scientific or technical notation. (e.g. RNG 3 or RNG 3E+03).
RNG ? →RNG,_____AUTO RNG_Y	Ask range
TRG_X	X = B Single triggering via IEEE/IEC bus. = E Single triggering via IEEE/IEC bus or "TRIGGER" input. = K Single triggering via Keyboard, "TRIGGER", input and IEEE/IEC bus.
X_[1] TRG_I	Single trigger. Starts a measurement. Internal triggering.
TRG_? → TRG_X	Asks for the trigger mode.

Function	Variables	Manual operation (keys)
SPEED		
FILTER		
NULL ($V_{\overline{\cdots}}$, short cct input)		
CAL		RESET ∅ RESET ∅ CAL ∅
DISPLAY		—
INTERNAL SETTLING TIME		—

Remote operation (commands)	Description
FNC_X	xxx can be one of the following functions: V D C = Direct voltage V A C = Alternating voltage R T W = Ohm 2-wire R F W = Ohm 4-wire I D C = Direct current I A C = Alternating current T D C = Temperature °C
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X_[1] TRG_I	Single trigger. Starts a measurement. Internal triggering.

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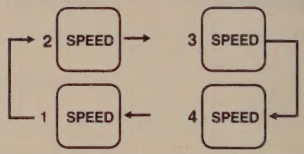
SPEED		
FILTER		
NULL ($V_{\overline{\cdots}}$, short cct input)		
CAL		RESET ∅ RESET ∅ CAL ∅
DISPLAY		—
INTERNAL SETTLING TIME		—

Remote operation (commands)	Description
MSP_X	X = 1 0,3 measurement/second. 2 3 measurement/second. 3 30 measurement/second. 4 100 measurement/second.
MSP_? → MSP_X	Asks for the measuring speed.
FIL_ON FIL_OFF	Filter on/off
FIL_? → FIL_ON FIL_OFF	Asks for the filter status.
NUL_ON NUL_N[EW] NUL_OFF	Null function on. A new Null value is stored in memory. Null function off.
NUL_? → NUL_ON NUL_OFF	Asks for the Null function status.
CAL_ON CAL_OFF	Calibration mode on. Calibration mode off.
CAL_? → CAL_ON CAL_OFF	Asks for the calibration mode status.
DSP_ON DSP_OFF	Display on. Display off.
DSP_? → DSP_ON DSP_OFF	Asks for the display mode status.
IST_ON IST_OFF	Internal settling time switched ON/OFF.
IST_? → IST_ON IST_OFF	Asks for the internal setting time status

Function	Variables	Manual operation (keys)
OUTPUT FORMAT	X	—
RESOLUTION	X	—
TEST		SHIFT CHECK ENTER ENTER ENTER ENTER ENTER
TEXT	X	
DUMP		—

Remote operation (commands)	Description
OUT_X OUT_? → OUT_X	X = S Outputs all of the measuring data string. N Outputs the measuring result only. N, y Outputs a numeric result, with the length specified by y.
RSL_X RSL_? → RSL_X	X = 4 Digit resolution 5 Digit resolution 6 Digit resolution 7 Digit resolution
TST	Diagnostic mode switched on.
TXT_X	Text specified in X is desplayed in the display off (DSP_OFF) mode.
DMP	Outputs all settings. (275 characters).

3. HELP FUNCTIONS

Function	Variables	Manual operation (keys)
AX+B	A, B	SHIFT AX+B A ENTER B ENTER SHIFT CLR AX+B SHIFT AX+B ENTER ENTER
dBm	Rref	SHIFT dBm Rref ENTER SHIFT CLR dBm SHIFT dBm ENTER
△% $(\frac{X-C}{C} \times 100\%)$	C	SHIFT △% C ENTER SHIFT CLR △% SHIFT △% ENTER

Remote operation (commands)	Description
SCL_ON	Switches-on the AX+B function with the present values of the A and B register.
SCL_ON, A, B	Switches-on the AX+B function and fills A and B with e.g. A = −765.4321 B = +.1234567
SCL_OFF	Switches-off the AX+B function with the present values of the A and B register.
SCL_OFF, A, B	Switches-off the AX+B function and fills A and B with e.g. A = +.1234567 B = −765.4321
SCL_? → SCL_OFF, A, B SCL_ON, A, B	Asks for the AX+B function status.
DBM_ON	Switches-on the dBm function with the present value of the Rref register.
DBM_ON, Rref	Switches-on the dBm function and sets Rref to the value of Rref..Ω e.g 250
DBM_OFF	Switches-off the dBm function with the present value of the Rref register.
DBM_OFF, Rref	Switches-off the dBm function and sets Rref to the value of Rref..Ω e.g. 5E+01.
DBM_? → DBM_ON, Rref DBM_OFF, Rref	Asks for the dBm function status.
PRC_ON	Switches-on the △% function with the present value of the C register.
PRC_ON, C	Switches-on the △% function and fills C with C = e.g. −168.4.
PRC_M[EAS]	Enters the measured value as C and switches on the △% function.
PRC_OFF	Switches-off the △% function.
PRC_OFF, C	Switches-off the △% function and fills C with C = e.g. +12345.67.
PRC_? → PRC_ON, C PRC_OFF, C	Asks for the △% function status.

Function	Variables	Manual operation (keys)
ZERO (X-D)	D	SHIFT ZERO D ENTER
		SHIFT CCR ZERO
		SHIFT ZERO ENTER
DELAY	X	SHIFT DELAY X ENTER
		SHIFT CLR DELAY
		SHIFT DELAY ENTER
LIMITS	X, Y	SHIFT LIMITS X ENTER Y ENTER
		SHIFT CLR LIMITS
		SHIFT LIMITS ENTER ENTER

Remote operation (commands)	Description
ZER_ON	Switches-on the ZERO function with the present value of the D register
ZER_ON, D	Switches-on the ZERO function and fills C with C = e.g. +1234.5E +00.
ZER_M[EAS]	Enters the measured value as D and switches on the ZERO function.
ZER_OFF	Switches-off the ZERO function with the present value of the D register
ZER_OFF, D	Switches-off the ZERO function and fills D with D = e.g. +11234.5
ZER_? → ZER_ON, D ZER_OFF, D	Asks for the ZERO function status.
DLY_ON	Switches-on the DELAY function with the present value of the delay register.
DLY_ON, X	Switches-on the DELAY function and fills the delay register with X ms (4 figures).
DLY_OFF	Switches-off the DELAY function with the present value of the delay register.
DLY_OFF, X	Switches-off the DELAY functiodn and fills the delay register with X ms (4 figures).
DLY_? → DLY_OFF, X DLY_ON, X	Asks for the DELAY function status.
LIM_ON	Switches-on the LIMITS function with the present value of the LIM-Lo and LIM-Hi register.
LIM_ON, X, Y	Switches-on the LIMITS function and fills the LIM-Lo register with X and the LIM-Hi register with Y.
LIM_OFF	Switches-off the LIMITS function with the present value of the LIM-Hi and LIM-Lo register.
LIM_OFF, X, Y	Switches-off the LIMITS function and fills the LIM-Lo register with X and the LIM-Hi register with X.
LIM_? → LIM_ON, X, Y LIM_OFF, X, Y	Asks for the LIMITS function status.

Function	Variables	Manual operation (keys)
BURST	N	SHIFT BURST N ENTER SHIFT CLR BURST SHIFT BURST ENTER
RD. BUF.	PRINT (0,1) LOCATION (X,Y)	SHIFT RD.BUF 0/1 ENTER X ENTER ▲ ▼ CLR RD.BUF

Remote operation (commands)	Description
BUR_ON	Switches-on the BURST function with the present value of the burst register.
BUR_ON, N	Switches-on the BURST function and fills the burst register with N.
BUR_OFF	Switches-off the BURST function with the present value of the burst register.
BUR_OFF, N	Switches-off the BURST function and fills the burst register with N.
BUR_? → BUR_ON, N BUR_OFF, N	Asks for the BURST function status.
	Switches-on the RD. BUF. function in BURST ON or- OFF mode, asks to print-out the result (0=NO 1=YES), enters the buffer location to be read (X=0−999) and allows stepping through the buffer using the ▲ ▼ keys, from location X.
	Switches-off the RD. BUF. function.
BURST ON	**BURST ON**
RBU_X	Outputs the buffer location and measurement result stored in location X.
RBU_X, Y	Outputs the buffer locations and measurement results stored in location X to Y.
BURST OFF	**BURST OFF**
RBU, −X	Outputs the buffer location and measurement result stored in buffer location −X.
RBU, −X, −Y	Outputs the buffer locations and measurement results stored in locations −X to −Y.
RBU_? → RBU_X, Data RBU_−X, Data	Asks for the RD. BUF. status.

Function	Variables	Manual operation (keys)
MIN/MAX	—	SHIFT · MIN/MAX · MIN/MAX · ENTER SHIFT · CLR · MIN/MAX
DIGITS	d	SHIFT · DIGITS · d · ENTER SHIFT · DIGITS · ENTER
PROG	Program recall No (X)	SHIFT · PROG · X · ENTER
	Program store No (X)	SHIFT · PROG · PROG · X · ENTER

Remote operation (commands)	Description
MIN → MIN, Data MAX → MAX, Data	Outputs MIN and the present contents of the MIN register. Outputs MAX and the present contents of the MAX register.
CLM	Clears MIN/MAX register.
DIG␣d	Enters the number of digits to be displayed D = 0≤d<7
DIG␣? →DIG␣d	Asks for the DIGIT function status.
RCL␣X	The PM2535 will use the settings stored in Px.
STO␣X	The present settings of the PM2535 are stored in Px.

Function	Variables	Manual operation (keys)
SEQU	Run AID (type) M (mode) dsp (display) Step	SHIFT SEQU ENTER SHIFT CLR SEQU SHIFT SEQU SEQU AID M ENTER dsp ENTER STEP ENTER
🔈	—	SHIFT 🔈 SHIFT 🔈

Remote operation (commands)	Description
SEQ␣ON	Switches-on the SEQU function.
SEQ␣OFF	Switches-off the SEQU function.
SEQ␣? → SEQ␣OFF SEQ␣␣ON	Asks for the SEQU function status.
Variables cannot be programmed via IEC-625/IEEE-488 BUS	Programs the system 21 variables.
ADI␣E AID␣D	Output from system 21 is enabled. Output from system 21 is disabled.
BLP␣ON	Switches-on the bleeper function.
BLP␣OFF	Switches-off the bleeper function.
BLP␣? → BLP␣␣ON BLP␣OFF	Asks for the bleeper function status.

4. INTERFACE PROGRAMMING CONTROLLER DEPENDENT COMMANDS

Function	Variables	Manual operation (keys)
LOCAL STATE	1	SHIFT CHECK 1 ENTER
DEVICE CLEAR	—	—
TRIGGER	—	—
SERIAL POLL	—	—

5. INTERFACE PROGRAMMING DEVICE DEPENDENT COMMANDS

Function	Variables	Manual operation (keys)
TALK ONLY	1	SHIFT CHECK ENTER 1 ENTER
ADRESS	X	SHIFT CHECK ENTER ENTER X ENTER
SERVICE REQUEST MASK	n	—
SEPARATORS	nn	—
IDENTITY	—	—
INTERFACE TEST	—	—

Remote operation (commands)	Description
SEQ␣ON	Switches-on the SEQU function.
SEQ␣OFF	Switches-off the SEQU function.
SEQ␣? → SEQ␣OFF SEQ␣␣ON	Asks for the SEQU function status.
Variables cannot be programmed via IEC-625/IEEE-488 BUS	Programs the system 21 variables.
ADI␣E AID␣D	Output from system 21 is enabled. Output from system 21 is disabled.
BLP␣ON	Switches-on the bleeper function.
BLP␣OFF	Switches-off the bleeper function.
BLP␣? → BLP␣␣ON BLP␣OFF	Asks for the bleeper function status.

4. INTERFACE PROGRAMMING CONTROLLER DEPENDENT COMMANDS

Function	Variables	Manual operation (keys)
LOCAL STATE	1	SHIFT CHECK 1 ENTER
DEVICE CLEAR	—	—
TRIGGER	—	—
SERIAL POLL	—	—

5. INTERFACE PROGRAMMING DEVICE DEPENDENT COMMANDS

Function	Variables	Manual operation (keys)
TALK ONLY	1	SHIFT CHECK ENTER 1 ENTER
ADRESS	X	SHIFT CHECK ENTER ENTER X ENTER
SERVICE REQUEST MASK	n	—
SEPARATORS	nn	—
IDENTITY	—	—
INTERFACE TEST	—	—

Remote operation (commands)	Description
GTL	Go to local
DCL SDC	Device clear. Selective device clear.
GET	Group execute trigger.
SPE SPD	Serial poll enable. Serial poll disable.

Remote operation (commands)	Description
—	Select talk only mode.
—	Set device address.
MSR_n[n][n]	Mask service request.
SPR_nn[,nn]	Set separator
ID_? → PM2535X_SYY	Asks for the identity
TSI_U → dec. 170 (SRQ) TSI_(dec. 170) → U	Test.

6. DEVICE STATUS BYTE

bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
EX	RQS	AB	BSY	EF3	EF2	EF1	EF0

7. OUTPUT DATA EXAMPLES

Char.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	V	D	C	Sp	Sp	C	+	1	2	3	.	4	5	6	7	E	-	0	3	SR3
	R	T	W	SP	Sp	Sp	+	1	2	.	3	4	5	6	7	E	+	0	3	SR3

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